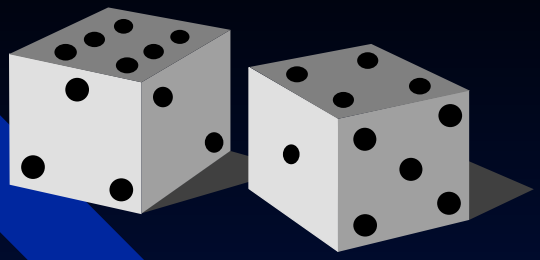

Risk Knowledge Capture in the Riskit Method

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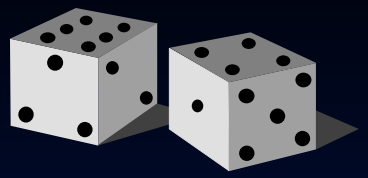
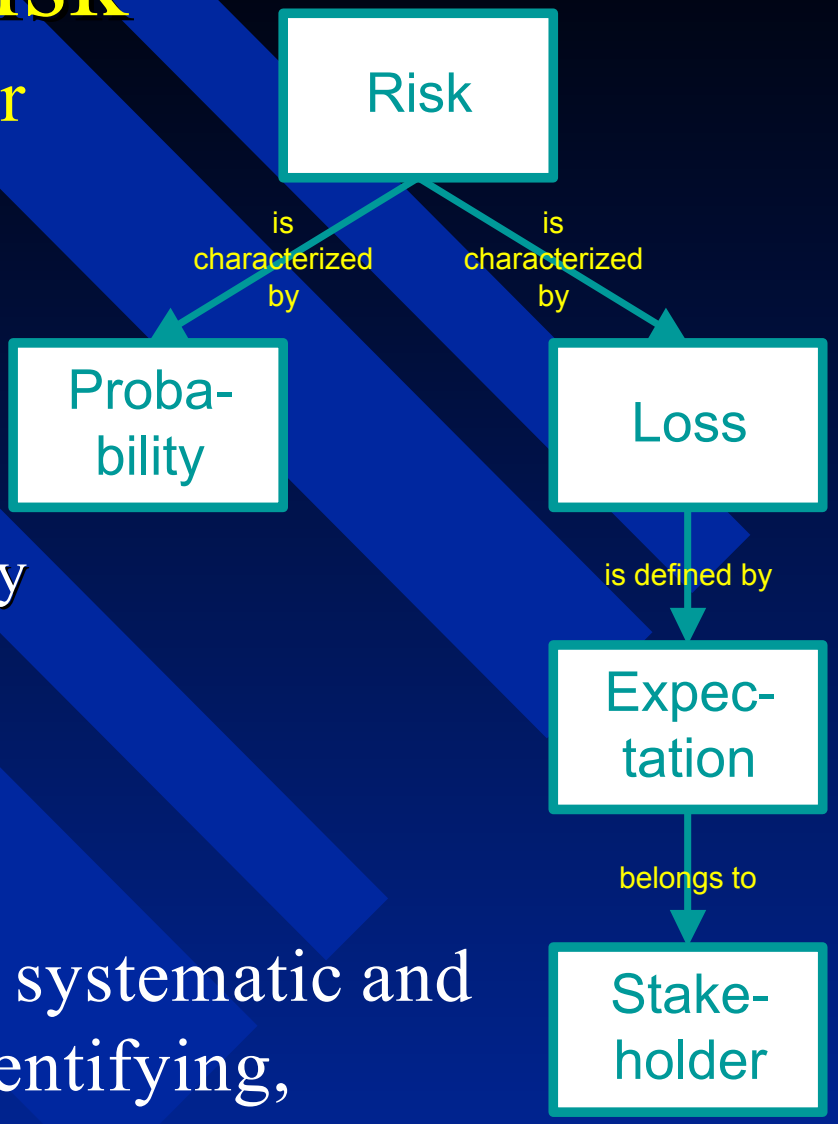
Outline



- Definition of risk
- The Riskit method
  - Underlying principles
  - Riskit process through an example
- Case studies
- Conclusions

Definitions of Risk

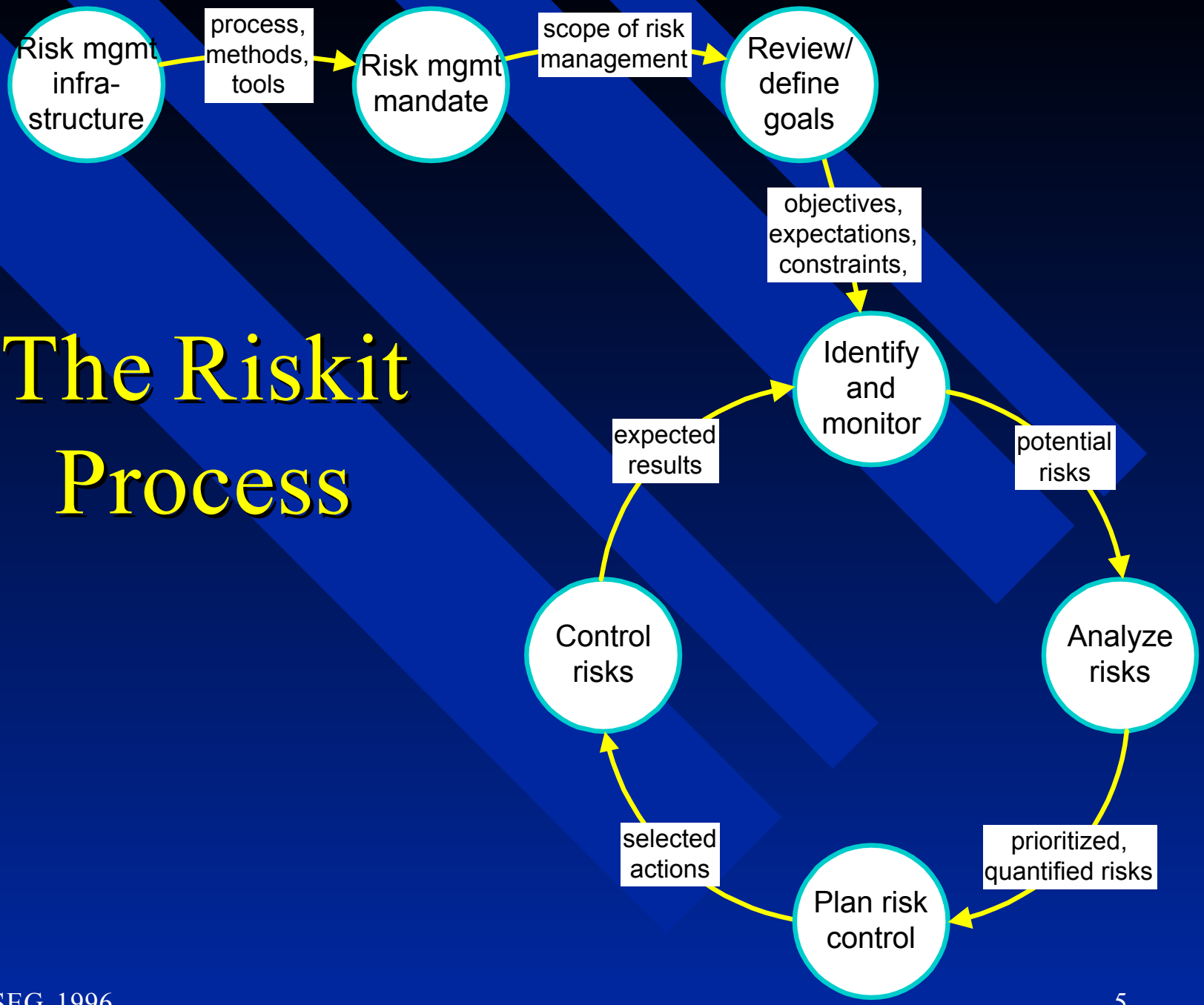
- Risk: a possibility of loss -- or any characteristic, object or action that is associated with that possibility.
- Risk is associated with:
  - probability: there is uncertainty
  - loss: some harm or damage
    - » goals or expectations
    - » stakeholder
- Risk management refers to a systematic and explicit approach used for identifying, analyzing and controlling risk.

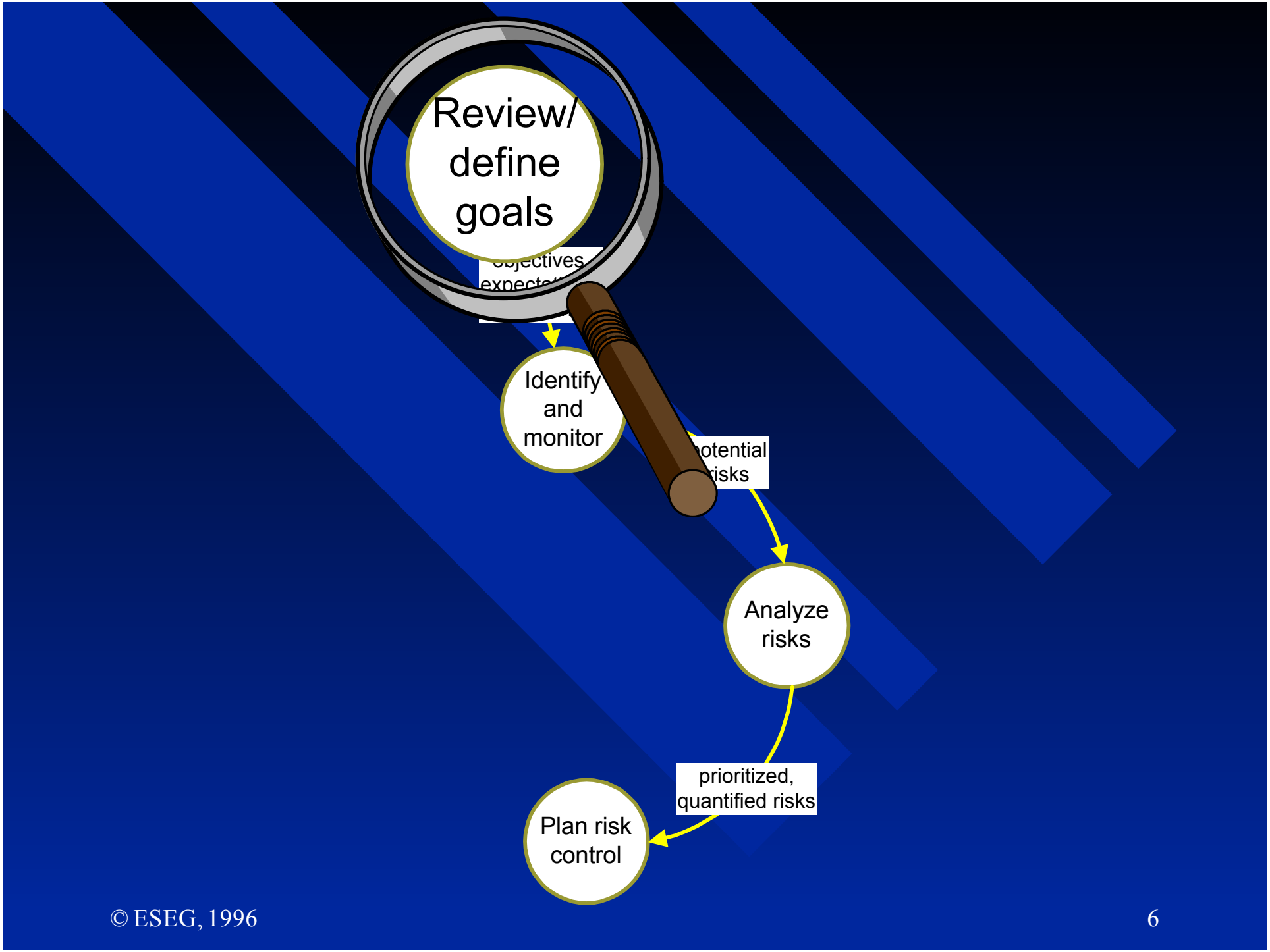


Riskit Main Principles

- Risks are relative to goals and expectations
- There's always more than one stakeholder
- Risks must be well defined
- Multiple goal effects are accounted for
- Losses estimated through utility loss
- Learn from past experience

The Riskit Process




Review/
define
goals
Identify
and
monitor
Analyze
risks
prioritized,
quantified risks
Plan risk
control

Example

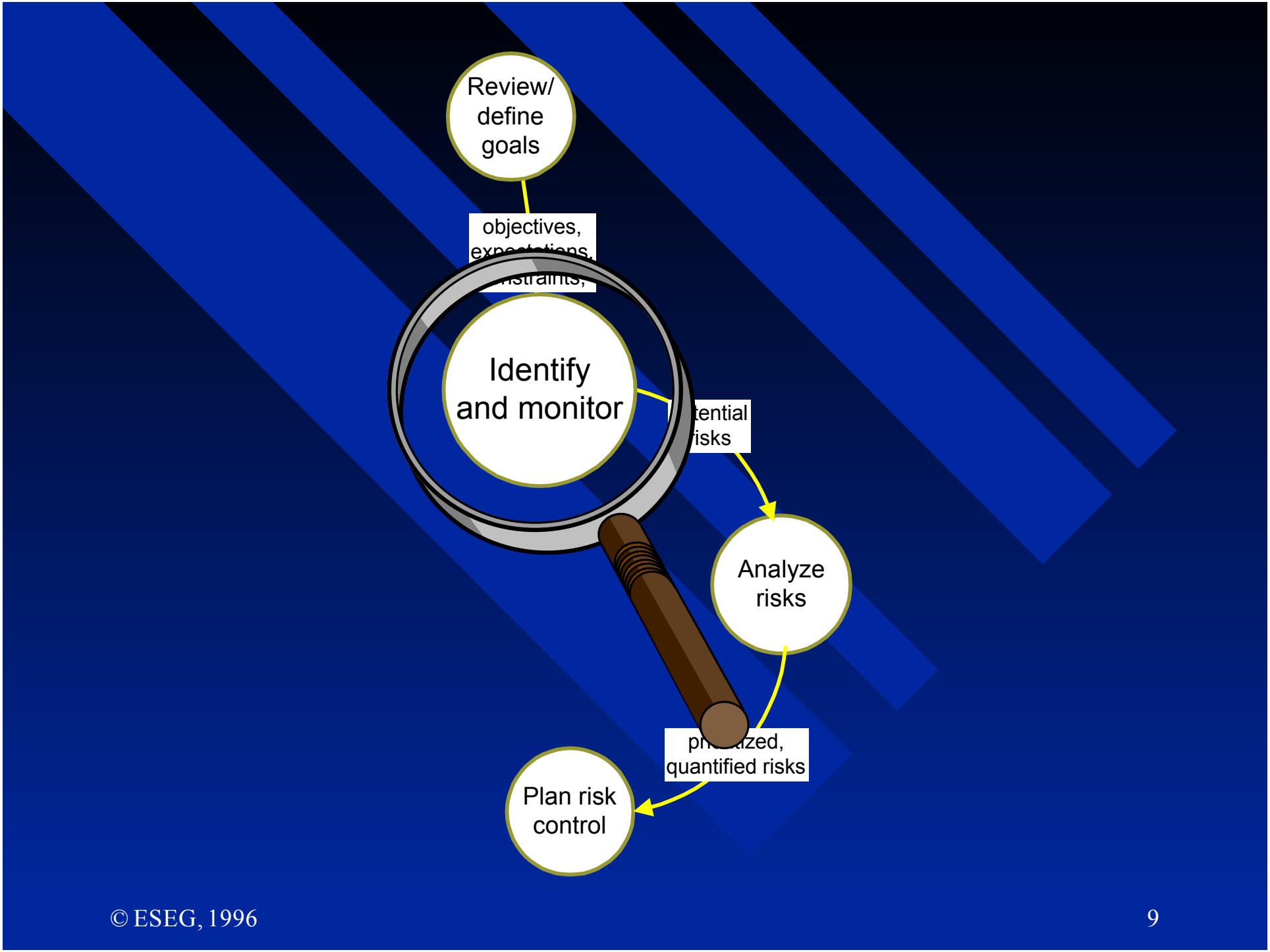
- This presentation
- Stakeholders
  - Audience
  - Presenter
  - Session chair
- Goals
  - Learn about risk management
  - Finish in 30 minutes
  - Sell Riskit to practitioners

"There's always more than one stakeholder"

"Risks are relative to goals and expectations"

Example: Review and Definition of Goals

Goal	Stakeholders	Metrics	Target
Learn about risk mgmt	• Audience	• Feedback • Questions asked • Use of Riskit?	
Finish in 30 mins	• Audience • Session chair	• Elapsed time	30 minutes
"Sell" Riskit	• Presenter	• Feedback • Questions asked • Info requests • WWW visits…	Some will try it out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tential
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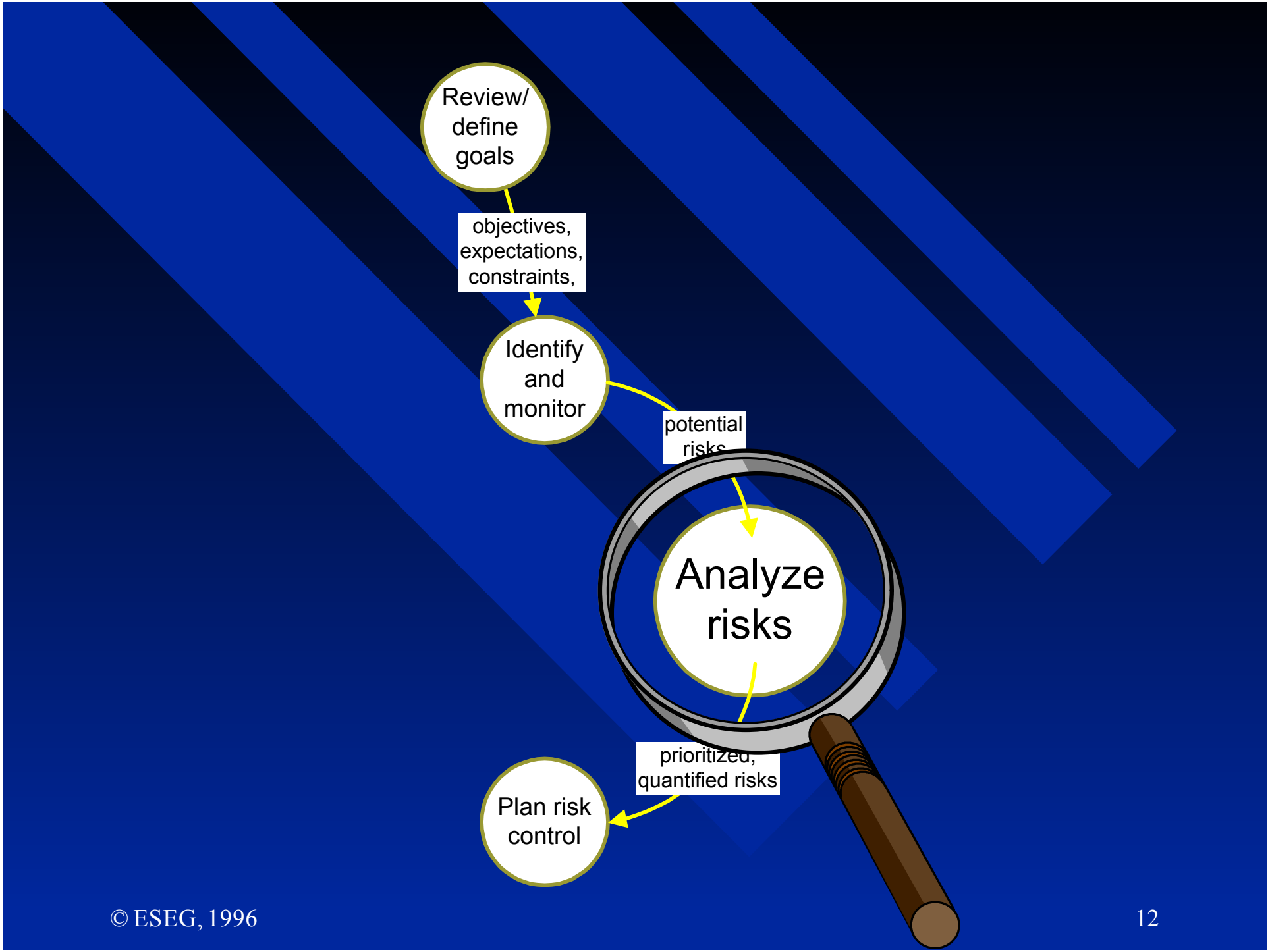
Example: Risk Identification

- Possible risks:
  - Talk will last longer than 30 minutes
  - On line slide presentation system fails
  - Presenter will mess up his slides
  - Too many questions at the end
  - Presenter will ramble off the topic
  - Audience does not have much background in risk management
  - Booster rockets from the space shuttle hit this building

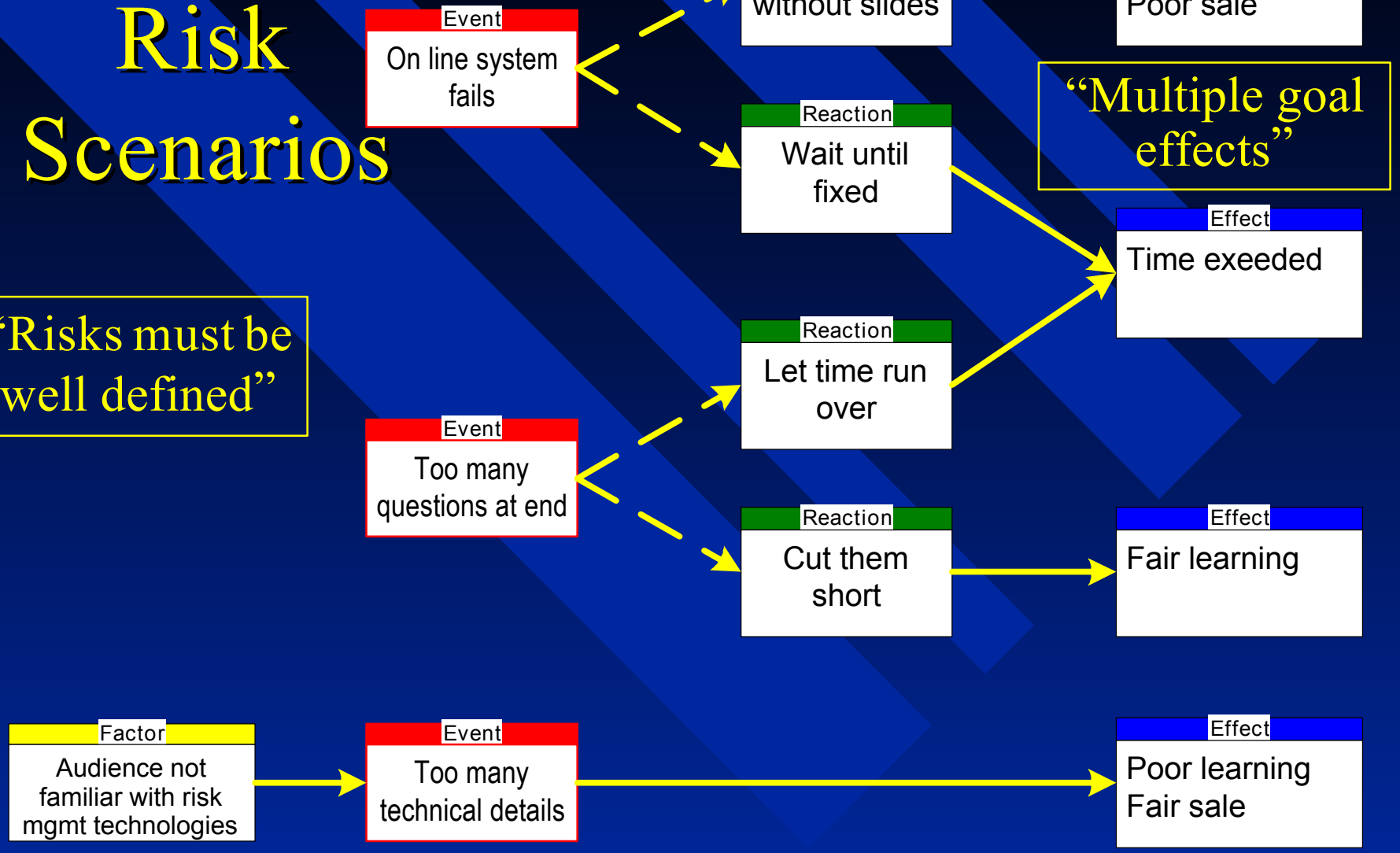
Example: Risk Identification

- Selected risks for risk analysis:
  - Talk will last longer than 30 minutes
  - On line slide presentation system fails
  - Presenter will mess up his slides
  - Too many questions at the end
  - Presenter will ramble off the topic
  - Audience does not have much background in risk management
  - Booster rockets from the space shuttle hit this building
  - ...


Review/ define goals
objectives, expectations, constraints,
Identify and monitor
potential risks
Analyze risks
prioritized, quantified risks
Plan risk control

Example: Risk Scenarios

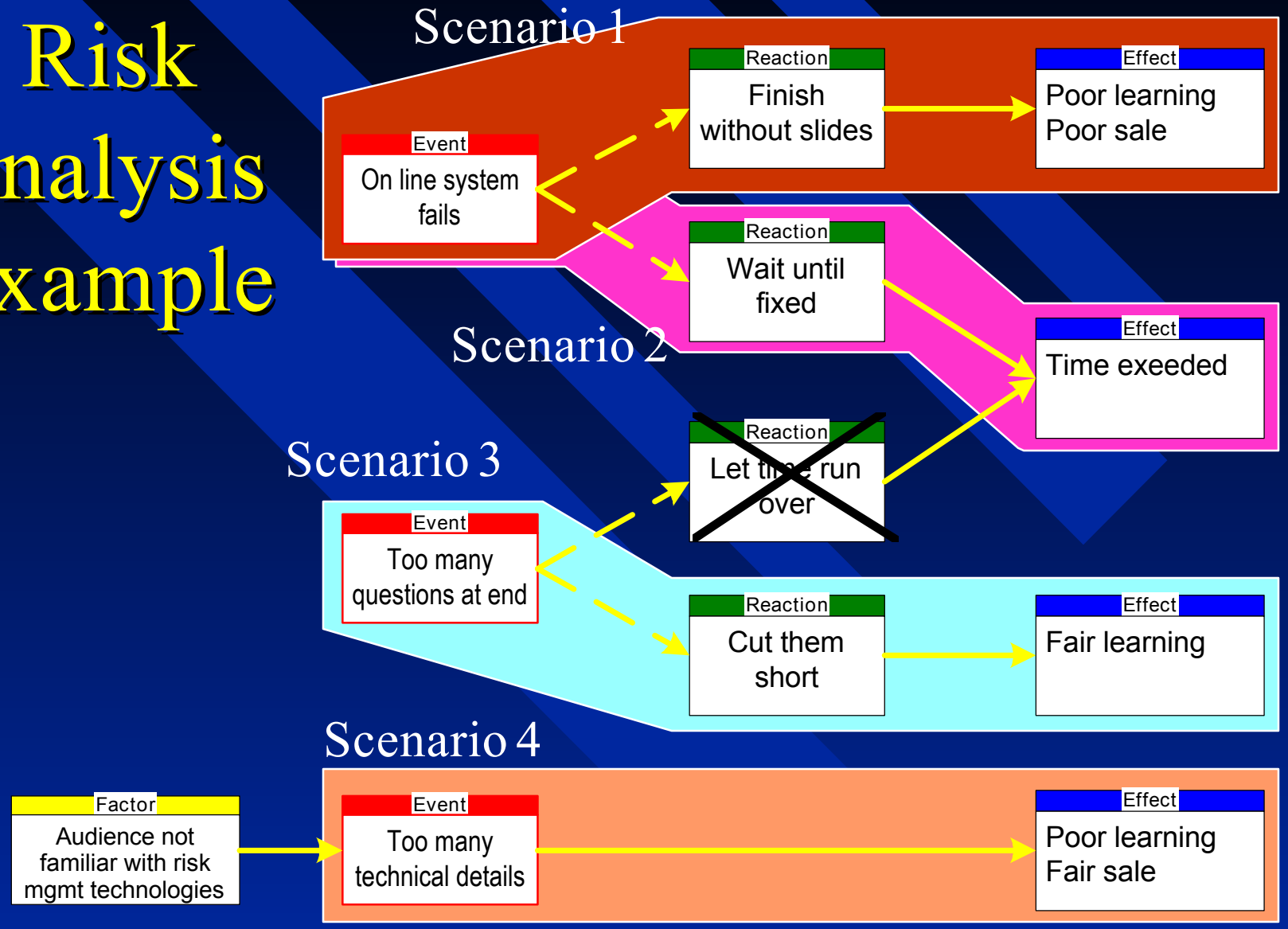
Example: Risk Scenarios



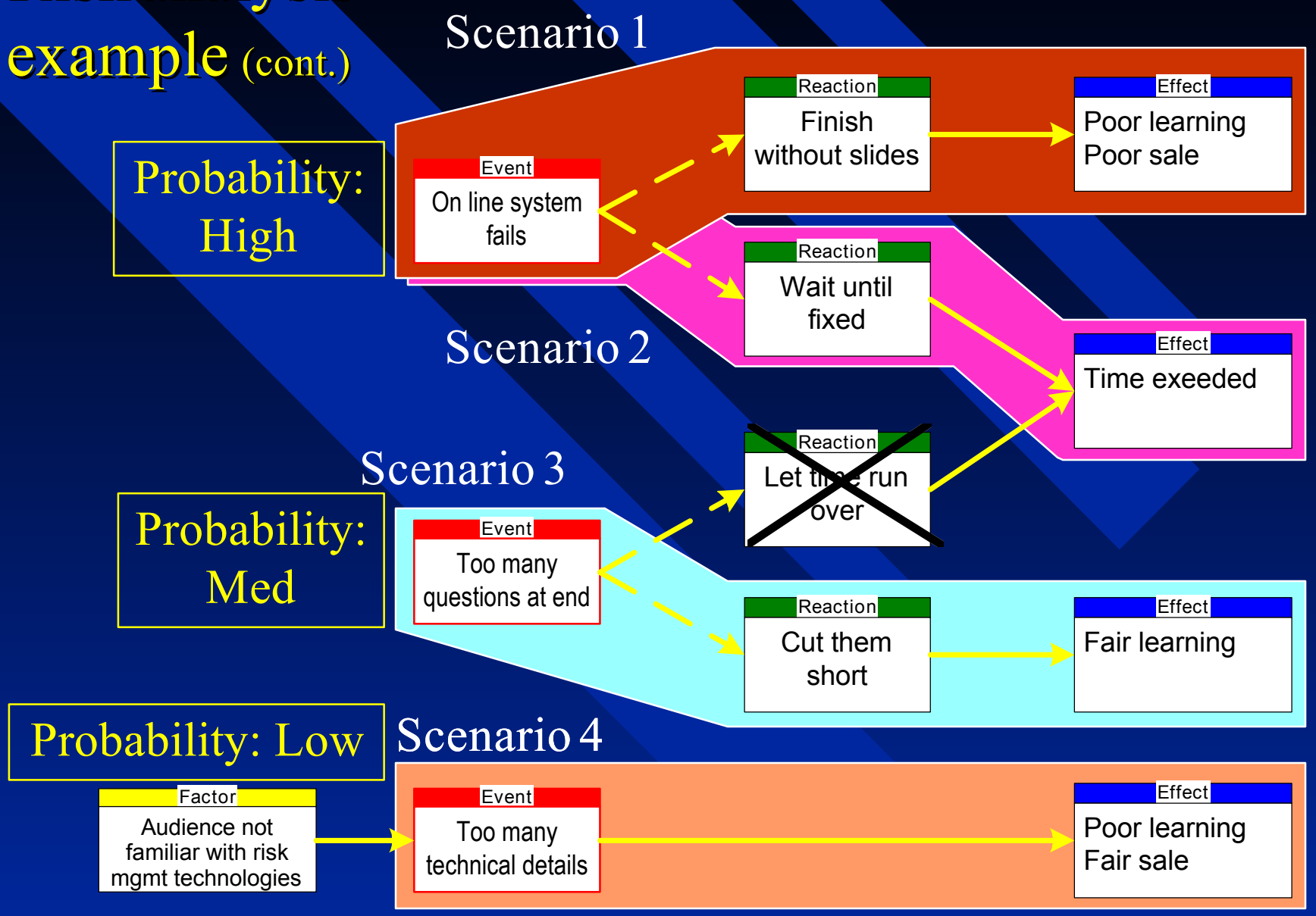
"Multiple goal effects"

"Risks must be well defined"

Risk analysis example



Risk analysis example (cont.)



Ranking Risk Effects

"Losses estimated through utility loss"

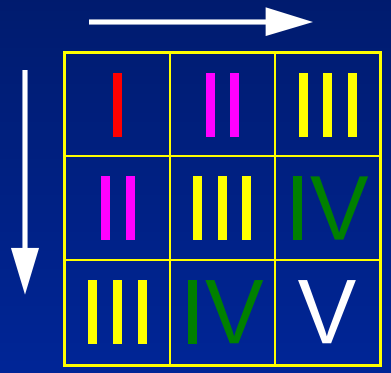
Stakeholders: Effects:	Audience	Presenter	Session Chair
Poor learning Poor sale	Hi	Hi	Low
Time exceeded	Med	Low	Hi
Fair learning	Med	Hi	Low
Poor learning Fair sale	Hi	Med	Low

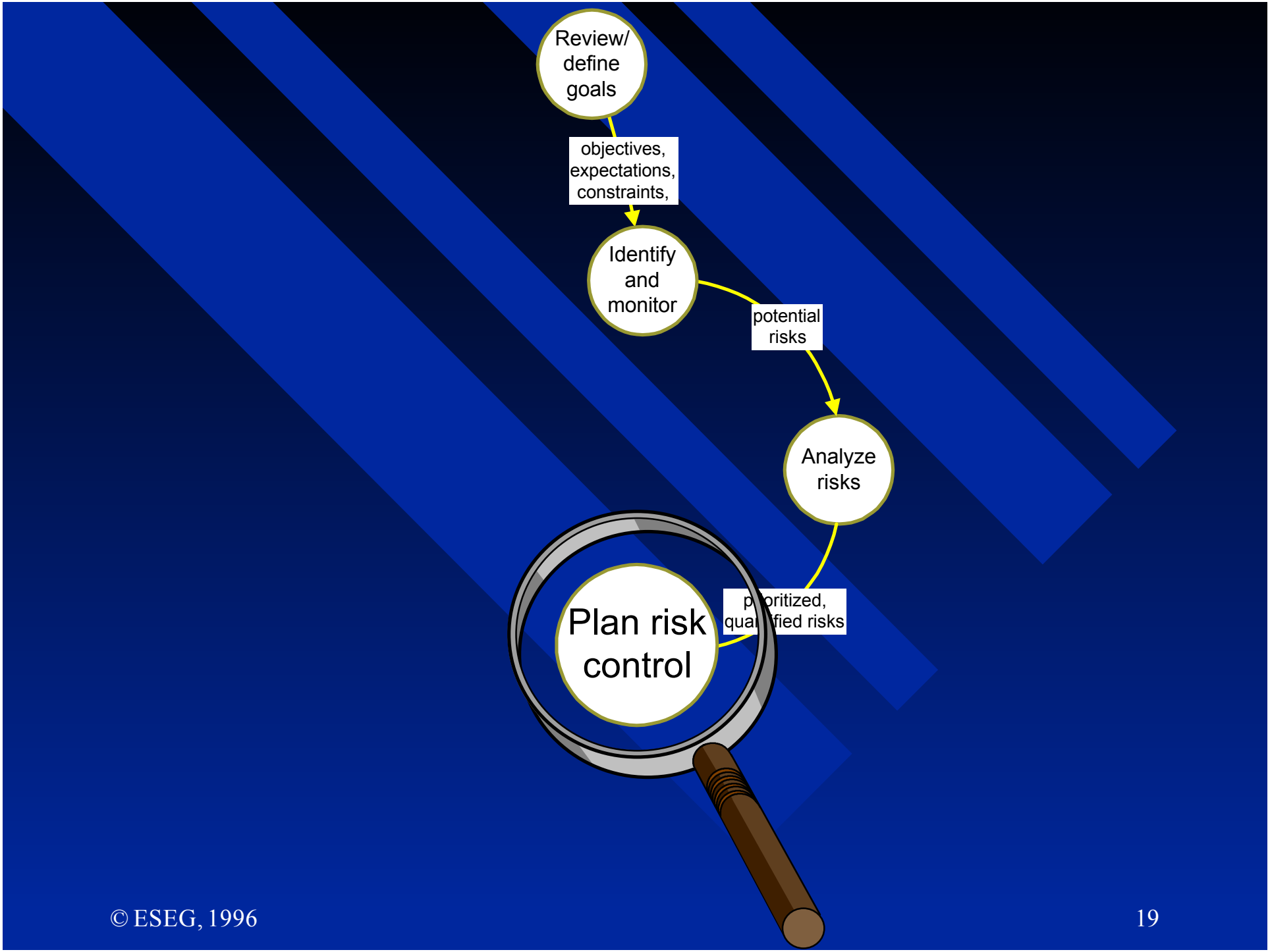
Example:
Selecting the scenarios

Presenter	Loss High	Loss Med	Loss Low
Prob High	Scenario 1		Scenario 2
Prob Med	Scenario 3		
Prob Low		Scenario 4	

Audience	Loss High	Loss Med	Loss Low
Prob High	Scenario 1	Scenario 2	
Prob Med		Scenario 3	
Prob Low	Scenario 4		

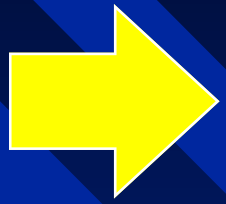
Chair	Loss High	Loss Med	Loss Low
Prob High	Scenario 2		Scenario 1
Prob Med			Scenario 3
Prob Low			Scenario 4




Review/ define goals
objectives, expectations, constraints,
Identify and monitor
potential risks
Analyze risks
Plan risk control

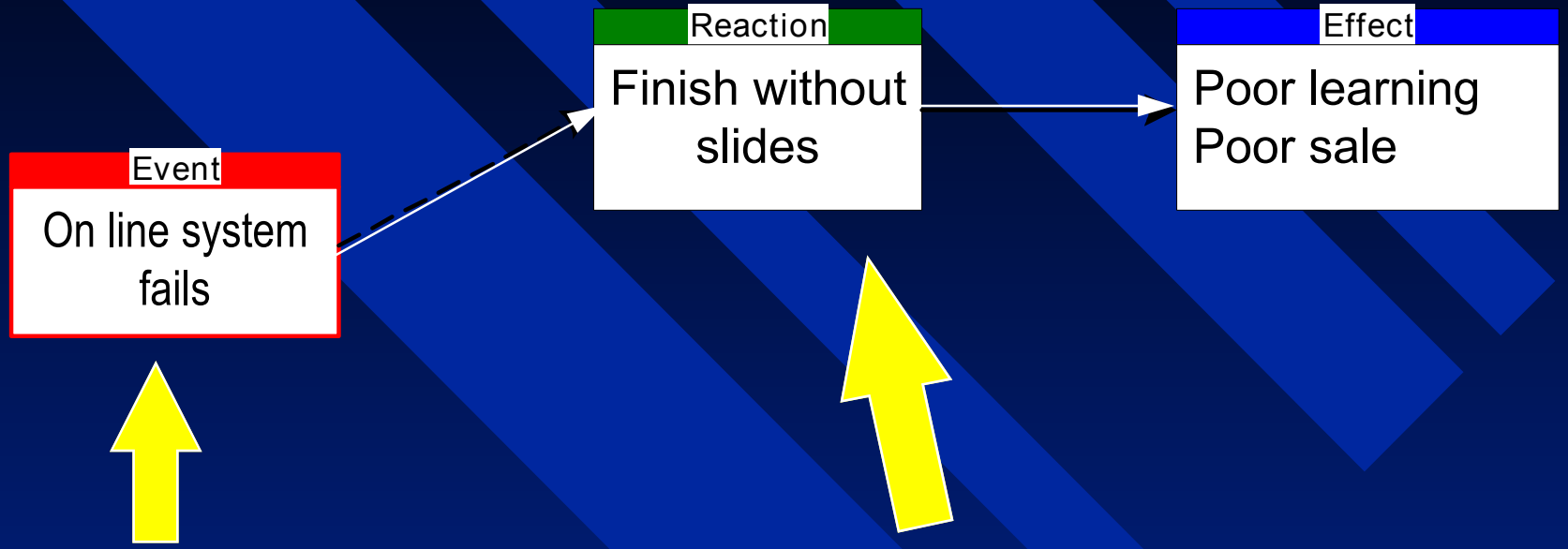
Risk Control Planning

- Presenter's priorities:
  - Scenario 1
  - Scenario 3
  - Scenario 2
  - Scenario 4
- Audience's priorities:
  - Scenario 1
  - Scenario 2
  - Scenario 3 and 4
- Chair's priorities
  - Scenario 2
  - Scenario 1
  - Scenario 3
  - Scenario 4



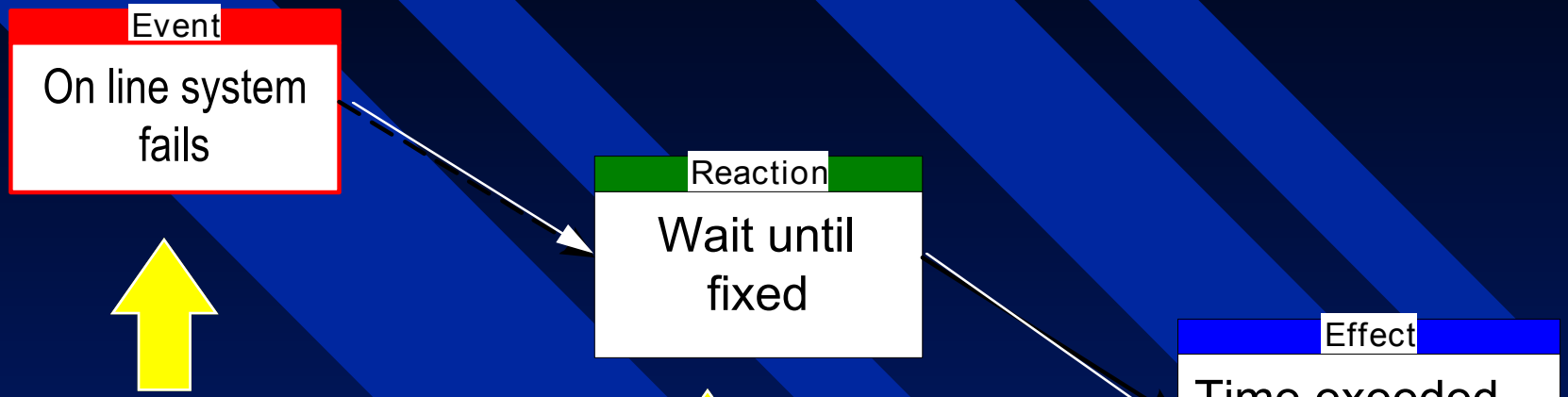
- Joint risk control for Scenario 1 and Scenario 2
- Scenario 3 is presenter's problem (and so is scenario 4)

Risk Control Planning for Scenario 1



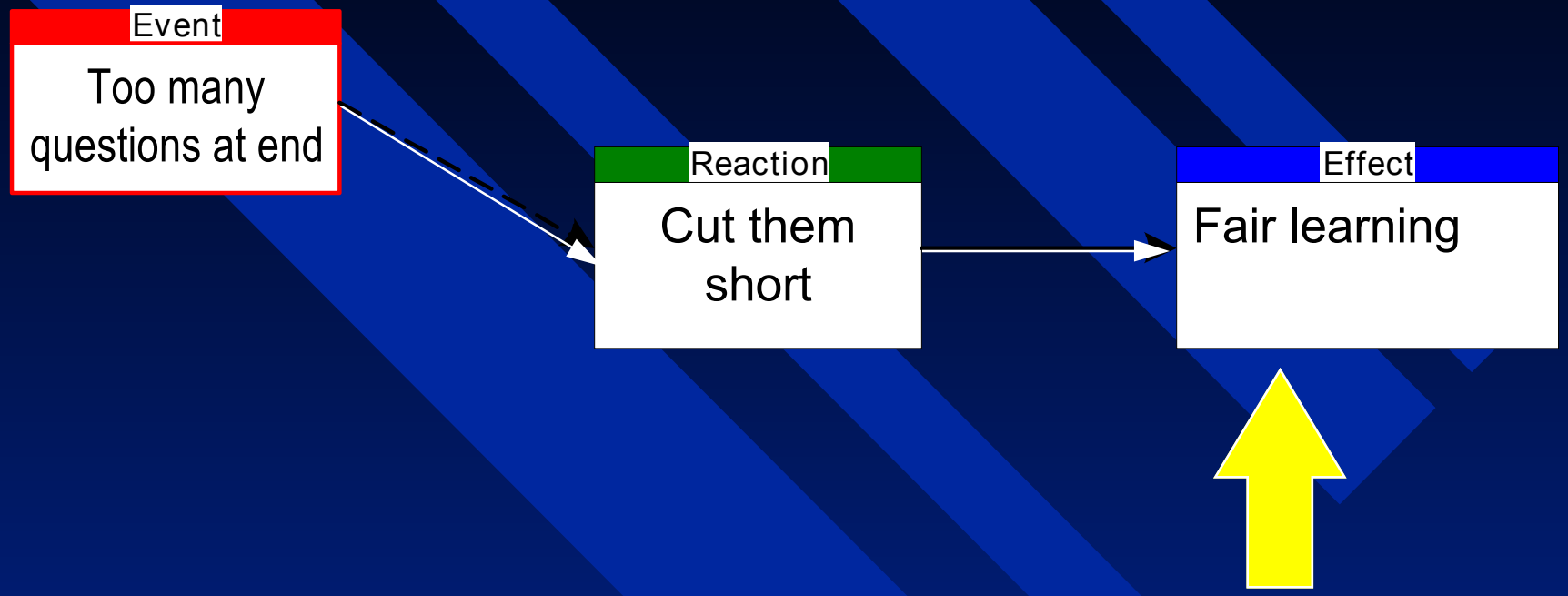
- Test the on line presentation system thoroughly
- Bring back up slides for overhead

Risk Control Planning for Scenario 2



- Test the on line presentation system thoroughly
- Have a back up system ready
- Bring back up slides for overhead

Risk Control Planning for Scenario 3

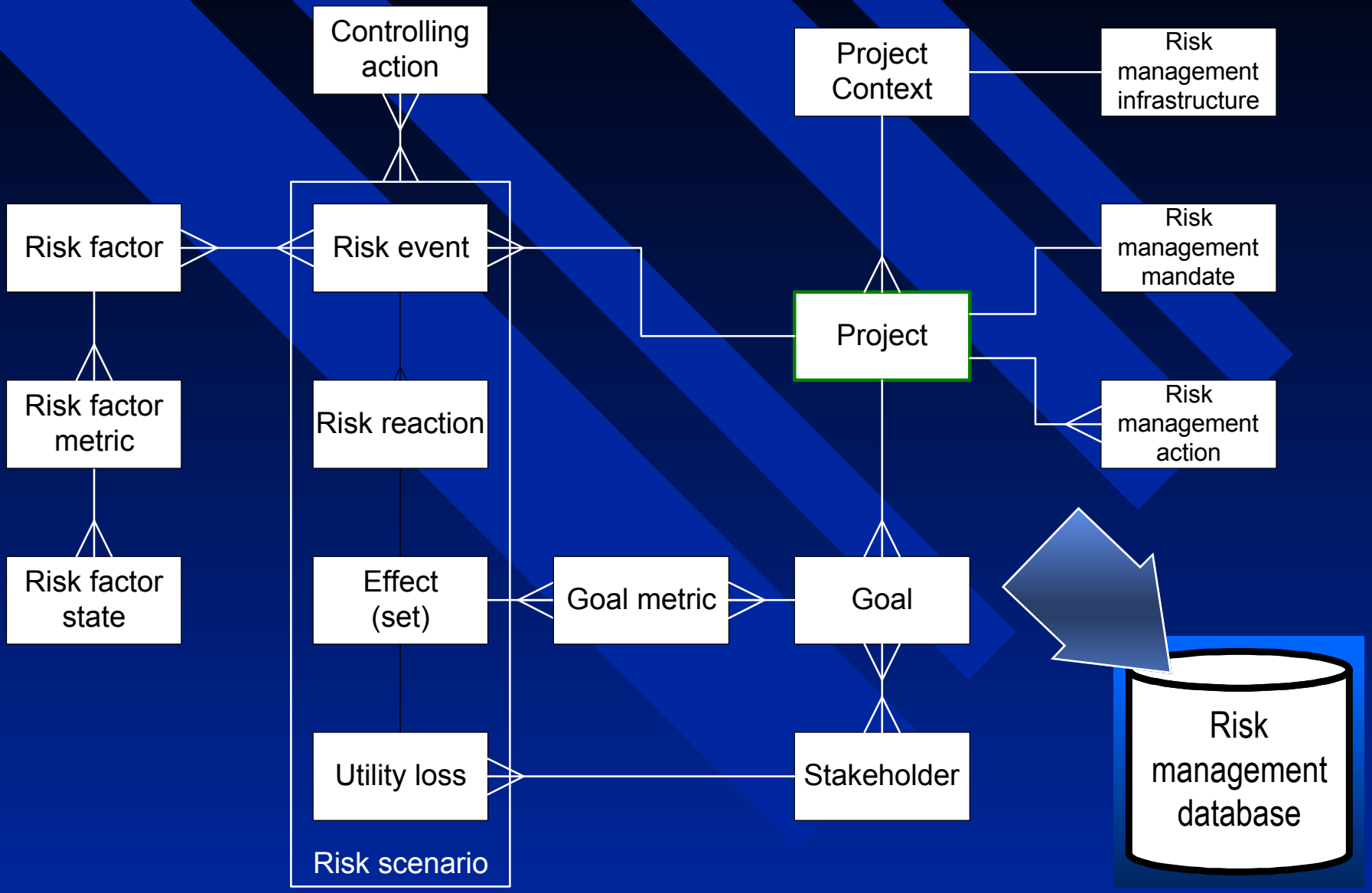


- Provide references for further information
- Hang around after the talk

Risk Management Experience Capture

- Goals
  - Risk management process improvement
  - Risk understanding
  - Risk monitoring
- Means
  - Risk management Experience Base
  - Risk management experience analysis

Risk Management Experience Base



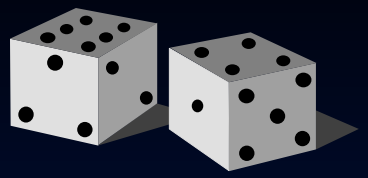
Empirical Studies

- SEL Case Study
  - exploratory study to support method development
- Hughes Case Study
  - exploratory study on method use
  - describe the method, assess feasibility, compare effectiveness
  - Produced 4 stakeholders, 17 goals and 48 risks

Case Study Experiences

- Riskit results in more detailed description and analysis of risks
- Method users gave high marks for Riskit for
  - "Well-defined process, usable and practical"
  - "Provides a high-level view of all risks"
  - "More confidence in results, more thorough, more complete analysis"
- Identified risks that normal approach might have ignored
- Riskit consumed more resources

Conclusions



- Benefits
  - avoids common limitations in risk management (multiple goals and stakeholders, risk ranking)
  - explicit and precise description of risks
  - increases user confidence in results
  - captures risk management experience
- Potential problems
  - higher cost
- Further work
  - case studies continue (e.g. Nokia Corporation)
  - potential automation for graphs and database

Main References

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R. N. Charette. Software Engineering Risk Analysis and Management, New York: McGraw-Hill, 1989.

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